

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-227-10

CODE: (IS)

DATE: 01/25/2012

SUBJECT: Hydroseeding

Section 907-227, Hydroseeding, is hereby added to and made part of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows:

SECTION 907-227--HYDROSEEDING

907-227.01--Description. This work consists of furnishing, transporting, placing, plant establishment and all work necessary to produce a satisfactory and acceptable growth of grass. The seeds, fertilizers, tackifier, and mulch shall be incorporated using the hydroseeding process. These items shall be combined into a mixture and force-applied to the areas to be grassed.

907-227.02--Materials. The Contractor shall, prior to application, furnish the Engineer with invoices of all materials used in the grassing operation.

907-227.02.1--Fertilizers. Fertilizers for purposes of these specifications shall be understood to include standard manufactured products consisting of single or combination ingredients.

All fertilizers shall comply with the State fertilizer laws and Subsection 715.02.

907-227.02.2--Seeds. Seeds shall meet the requirements of Subsection 715.03, subject to the provisions of this subsection. The Contractor shall acquire seed from persons registered with the Mississippi Department of Agriculture and Commerce.

Except for the germination requirements, bags of seeds properly labeled or tagged according to law and indicating characteristics meeting or exceeding the requirements of Subsection 715.03 will be acceptable for planting.

The Contractor should provide adequate dry storage facilities for seeds, and shall furnish access to the storage for sampling stored seed.

907-227.02.3--Mulching. The rate of application of fiber mulch shall be as recommended by the manufacture of the fibers mulch.

907-227.02.3.1--Wood Fiber Mulch. Wood fiber mulch shall be made from wood chip particles manufactured particularly for discharging uniformly on the ground surface when dispersed by a hydraulic water sprayer. It shall remain in uniform suspension in water under agitation and blend with grass seed and fertilizer to form a homogeneous slurry. The fibers shall intertwine physically to form a strong moisture-holding mat on the ground surface and allow rainfall to percolate the underlying soil. The fiber material shall be heat processed so as to

contain no germination or growth-inhibiting factors. The mulch shall be dyed an appropriate color to facilitate the application of material using non-toxic dye.

907-227.02.3.2--Cellulose Fiber Mulch. Cellulose fiber mulch consist of recycled paper stock products which are shredded into small pieces particular for application by hydraulic seeding equipment. It shall mix readily and uniformly under agitation with water and blend with grass seed and fertilizer to form a homogeneous slurry. When applied to the ground surface, the material shall form a strong moisture-holding mat, allow rainfall to percolate the underlying soil, and remain in place until the grass root system is established. The material shall contain no growth inhibiting characteristic or organisms. The mulch shall be dyed an appropriate color to facilitate the application of material using non-toxic dye.

907-227.02.3.3--Wood/Cellulose Fiber Mulch. Wood/cellulose fiber mix hydroseeding mulch shall consist of a combination of the above wood and cellulose fibers at a ratio recommended by the manufacturer of the products.

907-227.02.3.4--Straw Mulch. Straw mulch shall consist of a natural straw fiber. This material shall be a minimum 90% straw and essentially free from plastic materials or other non-bio degradable substances. The material shall be disperse into a uniform mulch slurry when mixed with water.

907-227.02.3.5--Tackifier. The tackifier will serve the purpose of an adhesive to form a bond between the soil, fiber, and seed particles. It will also allow the soil to retain moisture.

The tackifier shall be of the organic or synthetic variety.

907-227.03--Construction Requirements.

907-227.03.1--Ground Preparation. Light ground preparation consists of plowing, loosening, and pulverizing the soil to form suitable beds for seeding items in reasonably close conformity with the established lines and grades without appreciable humps or depressions. Unless otherwise specified, the pulverized and prepared seedbed should be at least four inches deep and shall be reasonably free of large clods, earth balls, boulders, stumps, roots and other objectionable matter. The Engineer may eliminate or alter the requirements for ground preparation due to site conditions.

907-227.03.2--Fertilizing. The Contractor shall furnish all equipment necessary to properly handle, store, uniformly spread, and incorporate the specified application of fertilizer.

The Contractor shall incorporate bag fertilizer at a rate of 1000 pounds per acre of 13-13-13 commercial fertilizer. The equivalent rate of other type fertilizers will be allowed if the equivalent percentages of Nitrogen, Phosphorus and Potassium are obtained. Any changes in the type or rate of application of the fertilizers shall be approved by the Engineer prior to being incorporated.

Agricultural limestone will be incorporated into the area and paid for in accordance with Section 213 of the Standard Specifications.

907-227.03.3--Seeding.

907-227.03.3.1--General. The Contractor shall use the vegetation schedule in the plan for the correct types of seed and application rates, unless otherwise noted or approved by the Engineer.

When a vegetation schedule for permanent grass is not shown in the plans, the following types of seed and application rates shall be used, unless otherwise approved by the Engineer.

Bermudagrass -----	20 pounds per acre
Bahiagrass -----	25 pounds per acre
Tall Fescue -----	15 pounds per acre
Crimson Clover -----	20 pounds per acre

At the completion of the project, a satisfactory growth of grass will be required. The Contractor should reference Subsection 210 for satisfactory growth and coverage of dormant seed.

907-227.03.3.2--Plant Establishment. The Contractor should provide plant establishment on all areas seeded until release of maintenance. Plant establishment shall consist of preserving, protecting, watering, reseeding, mowing, and other work necessary to keep the seeded areas in satisfactory condition.

Plant establishment should be provided for a minimum period of 45 calendar days after completion of seeding. In the event satisfactory growth and coverage has not been attained by the end of the 45-day period, plant establishment should be continued until a satisfactory growth and coverage is provided for at least one kind of plant. The Contractor should reference Section 210 of the Standard Specifications for more information.

907-227.03.3.3--Growth and Coverage. It shall be the Contractor's responsibility to provide satisfactory growth and coverage of grasses, legumes, or combination produced from the specified seeding.

Growth and coverage on seeded areas will be considered to be in reasonably close conformity with the intent of the contract when the type of vegetation specified, exclusive of that from seeds not expected to have germinated and shows growth at that time, has reached a point of maturity where stems or runners overlap adjacent similar growth in each direction over the entire area.

Final acceptance of the project will not be made until a satisfactory growth of grass has been acknowledged by the Engineer.

907-227.03.4--Mulching. At the Contractor's option, mulch may be wood fiber, cellulose fiber, a mixture of wood and cellulose fibers, or straw fiber. The mulch shall be applied at the rate recommended by the manufacturer in a mixture of water, seed and fertilizer. Any changes in the rate of application of the mulch shall be approved by the Engineer prior to its use.

907-227.03.5--Equipment. Hydraulic equipment shall be used for the application of fertilizers, seeds and slurry of the prepared mulch. This equipment shall have a built-in agitation system with an operating capacity sufficient to agitate, suspend, and homogeneously mix slurry of the specified amount of fiber, fertilizer, seed and water. The slurry distribution lines shall be large enough to prevent stoppage. The discharge line shall be equipped with a set of hydraulic spray nozzles, which will provide even distribution of the slurry on the various areas to be seeded.

The seed, fertilizer, mulch and water shall all be combined into the slurry tank for distribution of all ingredients in one operation as specified herein. The materials shall be combined in a manner recommended by the manufacturer. The slurry mixture shall be so regulated that the amounts and rates of application shall result in a uniform application of all materials at rates not less than the amounts specified. Using the color of the mulch as a guide, the equipment operator shall spray the prepared seedbed with a uniform visible coat. The slurry shall be applied in a sweeping motion, in an arched stream, so as to fall like rain, allowing the mulch to build upon each other until an even coat is achieved.

907-227.03.6--Protection and Maintenance. The Contractor should maintain and protect seeded areas until release of maintenance of the project. The Contractor should take every precaution to prevent unnecessary foot and vehicular traffic.

The Contractor should mow or otherwise remove or destroy any undesirable growth on all areas mulched to prevent competition with the desired plants and to prevent reseeding of undesirable growth.

907-227.04--Method of Measurement. Hydroseeding, complete and accepted, will be measured by the acre. No separate payment will be made for ground preparation, seeds, fertilizers, or mulch. Acceptance will be based on a satisfactory growth and coverage of seeds planted.

Agricultural limestone shall be measured and paid for under Section 213 of the Standard Specifications.

907-227.05--Basis of Payment. Hydroseeding, measured as prescribed above, will be paid for at the contract unit price per acre, which will be full compensation for all required materials, equipment, labor, testing and all work necessary to establish a satisfactory growth of grass.

Payment will be made under:

907-227-A: Hydroseeding

- per acre